AFRD Integrated Safety Management Plan 2004

Accelerator and Fusion Research Division
Ernest Orlando Lawrence Berkeley National Laboratory

Accelerator and Fusion Research Division
Integrated Safety Management Plan

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AFRD will conduct all of its operations in a manner that protects the health and safety of employees and the general public and that does not endanger the environment, as defined by the Laboratory's EH&S policies and requirements contained in the Regulations and Procedures Manual (RPM), PUB-3000, and the Berkeley Lab Integrated EH&S Management Plan (ISMS). This Plan has been established to assist in ensuring that the Division's ES&H objectives are met.

Accountability

The Division Director* is responsible and accountable for assuring that all AFRD activities are carried out in a safe manner, in accordance with all Laboratory requirements.

The AFRD ES&H Coordinator oversees the Division ES&H program, including review of Activity Hazard Documents (AHDs).

The AFRD ES&H Administrator is responsible for the day-to-day functioning of the ES&H program.

The structure and function of AFRD's safety organization is illustrated in Figure 1 and described in detail in the QUEST Program Guide. The AFRD ES&H Committee is headed by the Division Director, and includes the Deputies, ES&H Coordinator, ES&H Administrator, Program Heads from each of the designated research programs, leaders of major projects, and Program/Project ES&H Coordinators. The AFRD ES&H Committee discusses ES&H problem areas and suggests improvements to the QUEST self-assessment program. The AFRD ES&H Operations Committee consists of the ES&H Coordinator, ES&H Administrator, and Program/Project ES&H Coordinators. The ES&H Operations Committee discusses ES&H concerns of the programs and projects, lessons learned from them, and information on lab-wide ES&H issues. AFRD ALS Accelerator Physics Program safety issues are coordinated through the ALS Division safety committee. The AFRD ES&H Administrator attends ALS Division safety committee meetings.

The EH&S Liaison is invited to the meetings of the AFRD ES&H Committee and Operations Committee. The EH&S Liaison provides technical support to AFRD operations and coordinates requests for additional EH&S services.

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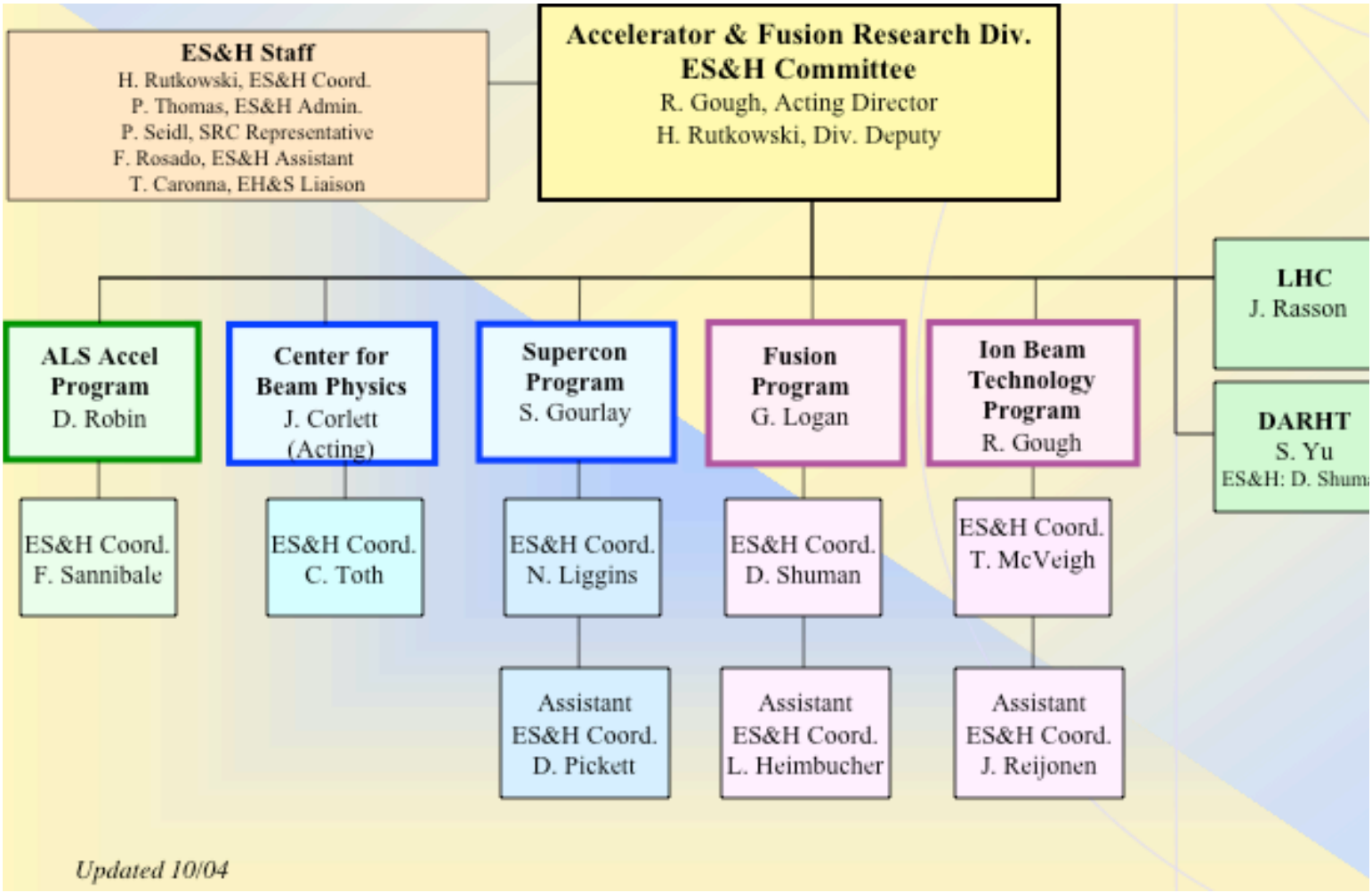
* Dr. William A. Barletta is on temporary assignment to the University of California. Dr. Richard A. Gough is serving as Acting Director of AFRD.

Figure 1, AFRD Environment, Safety, & Health Organization
Web users may view the full version at
http://www-afrd.lbl.gov/ISM2004/AFRD_ES&H_Org_Oct_04.pdf



Program Heads and Project Leaders are responsible for establishing, implementing, and maintaining effective ES&H procedures for their Programs/Projects and ensuring correction of ES&H deficiencies on a timely basis. All Program Heads and Project Leaders are expected to:

- Provide leadership and encourage participation in the ES&H activities of their Program/Project. Conduct at least one documented Program/Project all-hands meeting annually where safety is discussed;
- Conduct at least one documented safety walkthrough of their work spaces annually;
- Review and approve Activity Hazard Documents for their Program/Project activities;
- Communicate regularly with their Program/Project ES&H Coordinator and maintain awareness of their Program/Project ES&H performance.

Each Program Head appoints one or more Program ES&H Coordinators. (The Laser Plasma, AMAC, and LUX programs are represented by the Center for Beam Physics ES&H Coordinator.) In most Programs, this position is a part-time responsibility for a senior researcher or engineer. Projects appoint an ES&H Coordinator when significant fabrication and experimental work begins. Program/Project ES&H Coordinators are expected to:

- Participate in AFRD ES&H Operations Committee activities;
- Inform the Committee of planned activities in their Program/Project and assist in hazard review and work authorization activities;
- Organize QUEST teams and report findings to the Committee;
- Report any accidents, occurrences, hazardous conditions, or concerns that require action and report completion of action items;
- Communicate relevant ES&H information to their Program Head, Project Leaders, and other affected personnel.

The Programs are further divided into Groups concentrating on certain areas of operations and/or research. Each Group is headed by a Group Leader who reports to the Program Head and is responsible for ensuring that work performed by members of the group is conducted in accordance with applicable ES&H programs, procedures, and requirements.

All supervisors (including Principal Investigators) are responsible for ensuring work is planned considering ES&H risks, all assigned personnel are trained in ES&H responsibilities appropriate to the tasks performed, and work is performed in accordance with all applicable ES&H work authorizations and requirements. All supervisors are expected to:

- Inform their Program/Project ES&H Coordinator of planned changes to work scope or hazards;
- Review hazards and controls, determine authorization requirements, prepare required documentation, and ensure authorizations are approved before beginning work;
- Exercise adequate ongoing oversight of work activities to maintain safe work conditions and practices. Conduct at least one documented safety walkthrough of work spaces annually. Report safety concerns to their Program/Project ES&H Coordinator;
- Maintain safe and orderly work areas, including identifying and removing unused equipment from active work areas to storage areas whenever practical;
- Provide a workplace safety orientation to newly assigned personnel;
- Evaluate the training needs of assigned personnel whenever their job hazards change. Evaluate employee ES&H performance during the annual Performance Review;
- Ensure any accidents involving assigned personnel, whether on-site or off-site during official travel, are promptly reported to LBNL Health Services;
- Participate in reviews of any accidents or occurrences involving assigned personnel. Ensure Supervisor's Accident Analysis Reports are completed promptly and accurately. Identify and perform appropriate corrective actions.

All AFRD personnel (including AFRD employees, matrixed employees, visitors, temporary employees, students, and participating guests) are assigned to a QUEST self-assessment team, with the exception of short-term personnel. Persons whose participation in work activities at AFRD are anticipated to occur over a period of less than 90 days may be included in QUEST team as determined by the Program Head. ALS accelerator physics personnel are assigned to ALS Division QUEST Circles. Each QUEST team has charge of self-assessment for the workspace of it members.

All AFRD personnel are encouraged to report any workplace safety or environmental concerns to their supervisor. All accidents, on-site or off-site during official travel, must be reported to the supervisor and LBNL Health Services. All personnel are responsible for stopping any work activity considered an imminent danger, defined in Section 1.5 of Pub-3000 as any condition or practice that could reasonably be expected to cause death or serious injury, or environmental harm.

Contractors

Program Heads, Project Leaders, and supervisors (including Principal Investigators) take responsibility for the safety of contracted work by assuring qualified contractors are selected, hazards are identified, and work is performed safely.

AFRD contractor oversight will comply with the requirements of the ISMS. In accordance with Chapter 10 of PUB-3000, the safety rights and obligations of contract employees are the same as those of LBNL employees. AFRD supervisors assigned to direct the work of contract employees must provide instruction and conditions equivalent to those provided to LBNL employees, and require the use of equivalent safety equipment. (Equipment may be provided by LBNL or the contractor, as specified in the contract.)

Construction work must be authorized by LBNL Facilities. The safety and health of construction subcontractor employees is the responsibility of the construction subcontractor.

Matrixed Personnel

A person is considered "matrixed" if the person has a "home" division or department from which he/she is assigned to work in a "host" division or department which provides daily work instructions and oversight. Personnel from other divisions are matrixed to AFRD, and some AFRD personnel are matrixed to other divisions.

Persons performing short-term tasks for another division without being assigned a host supervisor, such as Facilities personnel responding to Work Requests or Engineering Division technicians working on AFRD equipment in the Bldg. 77 shop, are not considered matrixed personnel. The safety of these workers remains the primary responsibility of the home division. AFRD personnel requesting work from another division are expected to inform the workers of any unusual hazards or safety precautions associated with the work.

In accordance with Section 7.01 D of the LBNL Regulations and Procedures Manual, the employee's supervisor from the home division or department retains all health and safety responsibilities pertaining to matrixed employees, except where some of the responsibilities have been transferred to the host division or department through a formal Memorandum of Understanding. Whenever an MOU is established, it remains the responsibility of the home supervisor to assure that the MOU is appropriately implemented.

Supervisors are always responsible for maintaining the safety of the workspaces under their control. All personnel are responsible for stopping any work activities they observe that appear to be an imminent danger, regardless of the status of the persons performing the work.

Occurrences related to matrixed assignments are reported by the division whose operations are most affected, as determined by the host and home Division Directors. Home and host division personnel and EH&S Liaisons will assist in the Occurrence investigation, reporting, and corrective actions as requested by the reporting Division Director.

The home division supervisor retains primary responsibility for completing the Supervisors Accident Analysis Report for accidents involving their personnel who are matrixed to other divisions in accordance with the home division ISM Plan. Home and host division personnel and EH&S Liaisons will assist in accident investigation, reporting, and corrective actions as requested by the home division ES&H Coordinator/Administrator.

The host and home division supervisor discuss corrective actions for ES&H performance issues relative to the matrixed assignment. The host supervisor refers matrixed personnel to their home division supervisor to address issues that are not directly related to the day to day tasks of the matrix assignment. The host supervisor and home division supervisor stay appropriately informed of and sensitive to personnel issues that may be covered by collective bargaining agreements.

Students

Education and training of future generations is one of the University's missions and Berkeley Lab has a special responsibility to teach students to work safely. Young students do not have the motor skills and judgment that develops after years of professional experience. As part of their educational experience with AFRD, students should acquire an understanding and habit of planning work, analyzing hazards, obtaining authorizations, and working safely within controls. Supervisors are responsible for ensuring students are provided a safe and healthful workplace. Students are responsible for following the direction of their supervisors. As a condition of continuing their work at AFRD, students must meet the same requirements for training, work authorization, and safe work practices as employees and guests.

Supervisors are responsible for assigning work and providing supervision as appropriate to each student's age, training, and experience level. All personnel (students, guests, or employees) under the age of 18 are restricted by law from performing certain types of hazardous work. Supervisors of minors should discuss plans for work assignments with the General Sciences Human Resources Center.

Both supervisors and co-workers of students must recognize their special responsibility to serve as role models because their work practices may significantly influence the behaviors students adopt. Supervisors and co-workers are expected to communicate, cultivate, and enforce robust safe-work practices in students.

Work at UC Berkeley

Principal Investigators have an obligation to provide a safe workplace on campus for all LBNL-sponsored work. Lab-sponsored work on the UCB campus (exclusive of Donner and Calvin Laboratories) is to follow the ES&H policies and procedures within the "Partnership Agreement Between UCB and LBNL Concerning Environment, Health and Safety Policy and Procedures". Students need to be included in campus line management work authorizations before beginning work, trained to the campus standards prior to doing work, and properly supervised.

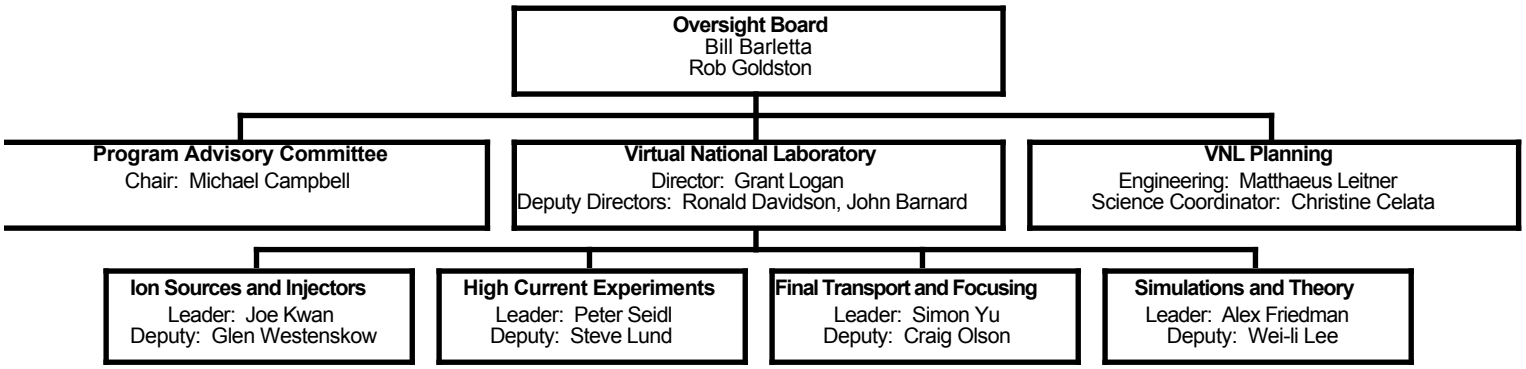
Heavy-Ion Fusion Virtual National Laboratory Safety Plan

Lawrence Livermore National Laboratory (LLNL), Princeton Plasma Physics Laboratory (PPPL), and Lawrence Berkeley National Laboratory (LBNL) are jointly engaged in Heavy Ion Fusion (HIF) research, with the goal of producing ion-beam based investigations of high energy density physics and Inertial Fusion Energy using induction accelerators as drivers. The staff of the three Laboratories carries out this research in a coordinated manner, as a Virtual National Laboratory (VNL). The terms of this coordination are outlined in a Memorandum of Agreement between the Laboratory directors. An Oversight Board governs the HIF VNL. The VNL Director provides strategic direction to the fusion energy science program and coordinates research efforts. The line management of each Laboratory retains supervisory authority of their personnel and responsibility for the safety of work at their home Laboratory. The VNL Deputies for PPPL and LLNL and the LBNL Fusion Energy Program Head keep the VNL Director informed about their Laboratory's management and ES&H organization structures.

As part of this coordinated research effort, many VNL staff members spend a fraction of their time at the three laboratories, and use the facilities of the three laboratories at least occasionally. The general principle to be followed by HIF VNL staff in all activities is to follow the operational procedures associated with the workplace where they are working at any given time. Integrated Safety Management principles are to be followed by HIF VNL staff wherever they are working, and by all personnel working at LLNL, PPPL, or LBNL. Office work at all three sites is to be carried out in a safe, responsible manner, with due regard to ergonomic safety considerations. Staff members are to be kept aware that their workplace environment will be adapted to meet their needs in this regard. (AFRD will provide ergonomic evaluations for HIF VNL personnel at LBNL in response to requests.)

Any safety concerns by HIF VNL personnel are to be communicated to the VNL Director and the Line Management where the concern occurs and the employee's home Laboratory.

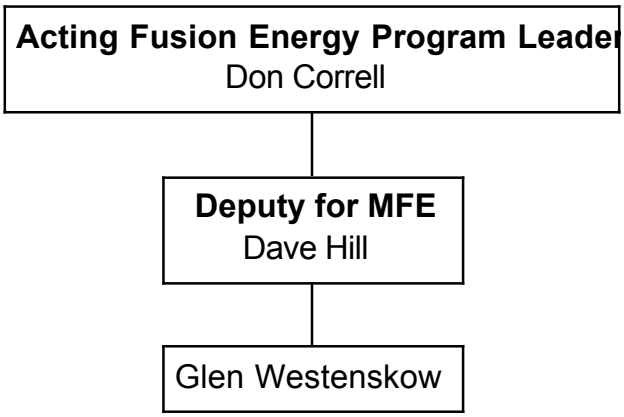
Figure A. Heavy Ion Fusion Virtual National Laboratory



Work at LLNL

HIF VNL personnel working at LLNL must comply with the LLNL ES&H Manual (http://www.llnl.gov/es_and_h/esh-manual.html) and any Facility Safety Plan (FSP), Operational Safety Procedures (OSP) and other safety procedures that apply. Safety responsibilities at LLNL follow line management. For a VNL member working at LLNL, the first point of contact for safety concerns is the leader of the LLNL activity in which the individual is involved. ***NOTE: All injuries to LBNL employees at LLNL must be reported to LBNL Health Services (510-486-6266) and the employee's LBNL supervisor.***

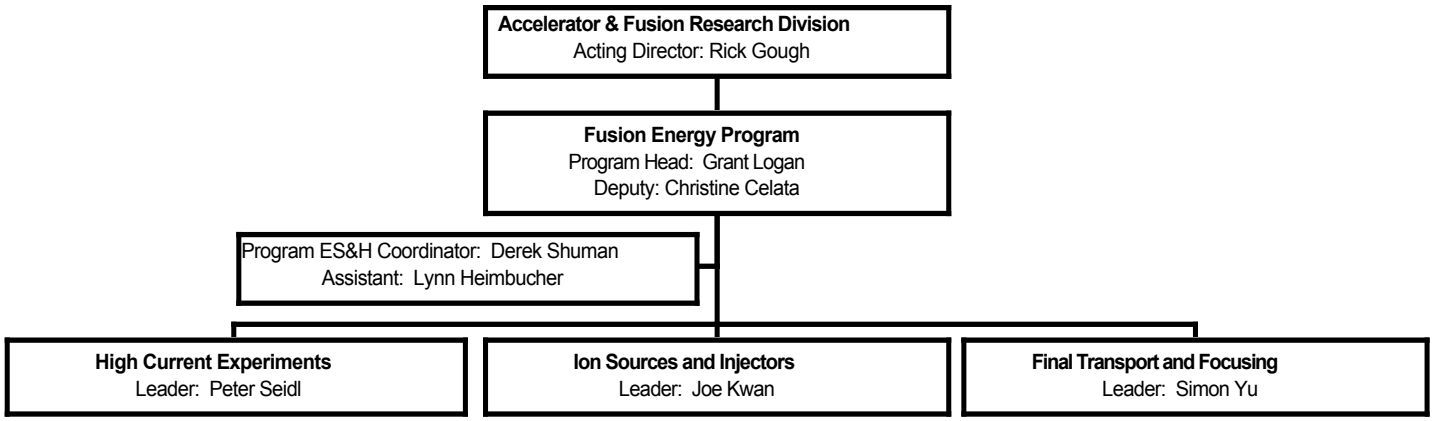
Figure B. LLNL HIF Organization



Work at LBNL

The Fusion Energy Program Head is responsible for the safety of VNL work at LBNL. The Fusion Energy Research Program Safety Coordinator assists the Program Head in implementing the safety program. LBNL and AFRD requirements, including PUB-3000 (http://www.lbl.gov/ehs/pub3000/) and the AFRD ISM Plan, govern all work at LBNL. Work procedures and authorizations are established for specific activities. Every person performing work at LBNL must be familiar with and implement applicable LBNL safety standards. Section 1.3.2 of PUB-3000 describes responsibilities for all personnel working at LBNL. These responsibilities include taking the initiative to seek assistance or advice as needed to carry out operations safely.

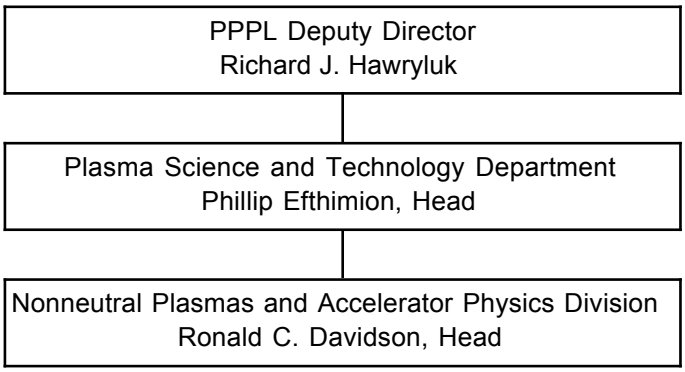
Figure C. LBNL HIF Organization



Work at PPPL

HIF VNL personnel working at PPPL must comply with the requirements described in the PPPL ES&H Manual (http://www.pppl.gov/eshis/ESHD_MANUAL/sm.html) and the PPPL Visitor Guide (http://www.pppl.gov/guide/), including completion of General Employee Training. In addition, HIF VNL personnel must follow requirements specified in project or facility specific documents such as Safety Assessment Documents (SADs) and operating procedures. All workers must be trained commensurate with their assignments to perform work safely. Safety responsibilities at PPPL follow line management. For a VNL member working at PPPL, the first point of contact for safety concerns is the leader of the PPPL activity in which the individual is involved. All individuals working at PPPL, including HIF VNL personnel, have the authority and responsibility to require that work, which is creating an imminent danger, be immediately stopped. ***NOTE: All injuries to LBNL employees at PPPL must be reported to LBNL Health Services (510-486-6266) and the employee's LBNL supervisor.***

Figure D. PPPL HIF Organization



Scope of Work

The scope of AFRD research activities is defined by the Mission Statement of our Division Charter: "The Accelerator and Fusion Research Division is broadly charged with conducting basic and applied research and development in all areas pertaining to the physics and technology of beams. In addition, it operates major LBNL facilities that exploit accelerated beams for use in basic and technological research." Divisional activities encompass the conception, design, construction, and operation of accelerators and storage rings for scientific and technological research, for fusion-energy experimentation, and for industrial and medical applications, as well as the development of superconducting magnets, beamlines, and other components for use in such machines. Current AFRD operations include particle beams, superconducting magnets, lasers, laboratories, machine shops, fabrication areas, warehouse space, and office spaces.

Some AFRD personnel conduct work at the Advanced Light Source and other LBNL facilities. AFRD personnel may also work on the University of California campus and at other off-site locations. Personnel from other organizations, including visitors, guests, and students, work at AFRD facilities.

The hazards associated with operations at LBNL are described in the Hazards, Equipment, Authorizations and Review (HEAR) database. The HEAR database is one of the tools used by the division for defining its authorized scope of work and for identifying the hazards associated with its work activities. The database information is reviewed and updated at least annually by the AFRD ES&H Administrator. Program/Project ES&H Coordinators inform the Administrator of planned changes to work scope and associated hazards.

The AFRD ES&H Administrator also serves as the Division Space Coordinator. This combination of duties provides additional opportunities for participation in the work planning process, to ensure facilities provided are appropriate to the work to be performed in the space. Space coordination activities require the ES&H Administrator to visit work areas frequently, providing opportunities to observe work in progress and assist in identifying potential hazards.

Operations and Work Authorization

Division, Program, and Project managers and supervisors (including Principal Investigators) are responsible for considering ES&H hazards, risks, and concerns during the work planning process and appropriate controls are determined prior to authorizing work. AFRD work authorization procedures are tailored to the level of hazard of the work.

General duties not requiring formal authorization are authorized by the employee job descriptions and by completion of training requirements determined by the supervisor. Hazards for routine work are identified on the HEAR database.

Work recognized as posing special hazards is planned and authorized as described in Chapter 6 of PUB 3000, the ISMS, Section 1.3 of the Operating and Assurance Plan, and AFRD and Program/Project procedures. Work authorization methods commonly utilized for AFRD operations are described below.

Field Work Proposal/Agreements (FWP/As), Work For Others requests (WFOs), Cooperative Research and Development Agreements (CRADAs), and Laboratory Directed Research and Development (LDRD) documents are carefully reviewed for compliance with environment, health, and safety concerns. The conceptual design process includes documented involvement of applicable EH&S Division personnel in the review of performance and regulatory requirements, codes and standards, and ES&H criteria.

Major projects (according to DOE classification criteria) undergo a formal Operational Readiness Review (ORR) or Accelerator Readiness Review (ARR) under DOE direction. Smaller projects undergo an internal readiness review and work authorization process performed by program and division management as described below.

Experimental hazards are assessed and authorized in accordance with PUB-3000, Chapter 6, EH&S Documentation and Approvals. The HEAR Client Input Form (PUB-3000, Chapter 6, Appendix G) is used to document the review of experimental activities to determine authorization requirements.

For experiments or facilities that require an Activity Hazard Document (AHD), the AHD is reviewed and signed by the Division Director, AFRD ES&H Coordinator, the Principal Investigator, the Program Head, and appropriate EH&S Division representatives.

Work requiring a Radiological Work Authorization, Sealed Source Authorization, or other ES&H permit or authorization will be performed in accordance with the authorization issued by the EH&S Division.

AFRD personnel working off-site are required, at a minimum, to comply with the ES&H requirements applicable to the site at which they are working. The Principal Investigator/Activity Supervisor is responsible for assigned personnel working off-site, including the obligation to stop work immediately if they encounter or discover any work-related activities constituting an imminent danger.

Qualification

AFRD selects, assigns, and retains personnel in accordance with the RPM and AFRD procedures. In selecting from a group of applicants, the division director, program head, or project leader evaluates the applicants' qualifications and selects the person who possesses the qualifications to perform the duties of the position most effectively. In making this judgment, the division director, program head, or project leader compares the knowledge, skills, abilities, and other qualifications of the applicants with those required for successful performance of the duties of the position. AFRD contractor selection will comply with the requirements the RPM and ISMS. Effective and successful performance of duties includes performance in a manner that protects the health and safety of employees and the general public and that does not endanger the environment, as defined by the Laboratory's EH&S policies and requirements contained in the RPM, PUB-3000, ISMS, and OAP.

Training

Each AFRD supervisor is responsible for ensuring all assigned employees, students, visitors, and guests whose anticipated assignment with AFRD exceeds 60 days have completed an ES&H Training Profile within the first month of work. (The Training Profile is usually created by completing the Job Hazards Questionnaire. Supervisors may create Training Groups for their personnel.) Whenever an employee's job assignment changes, the ES&H Training Profile is reviewed to ensure that the required training is appropriate to the employee's job hazards, program assignments, and safety roles. Annually, in conjunction with the Performance Review process, the ES&H Training Profile and the employee's completion of required training is reviewed, and a training plan is developed for each employee for the next twelve-month period.

Work authorizations, such as Activity Hazard Documents, Radiological Work Authorizations, and Sealed Source Authorizations, may specify training requirements for authorized personnel. The AFRD ES&H Administrator ensures EH&S training courses required by AFRD work authorizations are included in the Training Profiles of authorized personnel. The training records of authorized personnel are reviewed for completion of required EH&S courses prior to approval, modification, and renewal of formal work authorizations. The Principal Investigator or Activity Supervisor designated by the work authorization is responsible for ensuring authorized personnel have completed required training, including on-the-job training in activity-specific procedures, before being allowed to work without direct supervision.

Funding of EH&S Requirements

Principal Investigators incorporate appropriate resource allocation for ES&H concerns in all research proposals, including cost of safety equipment, permits, training, maintenance, waste disposal, and facilities modifications unless covered by institutional funding sources.

Resources

To facilitate implementation and execution of the Division ES&H Program, the following Division resources are made available:

0.2 FTE Division ES&H Coordinator
1.0 FTE Division ES&H Administrator
0.1 FTE General Sciences ES&H Assistant

The AFRD ES&H Administrator's duties include providing approximately .12 FTE support to the ALS Division ES&H Coordinator.

ES&H efforts are integral part of all AFRD activities and are performed by all AFRD personnel as needed and appropriate to the job task. The estimated level of effort is anticipated to include, but is not limited to:

≥ 4 hr/Program or Project/month Program or Project ES&H Coordinator duties
≤ 1.5 hr/employee/month QUEST self-assessment team

AFRD will require support from EH&S Division professionals on an as-needed basis. EH&S estimates that direct support activities may require a level of effort of approximately .47 FTE, as described in Appendix 1, Estimated EHS Support of AFRD. AFRD also expects to receive EH&S general programmatic support as described in PUB-3000, including but not limited to EH&S training courses.

Validation, Feedback, and Improvement

AFRD's primary method of assessing and validating the effective implementation of this Plan is our self-assessment process, described in detail in the QUEST Program Guide. Our self-assessment process is evaluated annually and findings are summarized in the annual AFRD Self-Assessment Report. Performance measurement criteria for this report are described in Appendix 2. Walkthrough and QUEST action items are tracked to completion on the LCATS database. Action item completion status, trends, and root causes are summarized in the AFRD Self-Assessment Report.

Additional opportunities for improvement will be identified through LBNL self-assessment activities, as described in PUB-5344, ES&H Self-Assessment Program, including Integrated Functional Appraisals, Integrated Hazard Assessments, Safety Review Committee MESH reviews, and Appendix F performance reports. If any discrepancies between authorization information provided by EH&S and records maintained by AFRD are noted, these discrepancies will be discussed with the appropriate EH&S personnel and the relevant documents will be corrected or clarified as necessary. DOE, UC, and ES&H regulatory agency oversight activities may identify necessary improvements. Applicable information from the LBNL Lessons Learned program will be disseminated by the ES&H Administrator as another means to share information for accident prevention and hazard awareness.

This Plan will be reviewed and updated annually, and may be revised more frequently as needed to facilitate compliance with regulatory and contract requirements and enhance the effectiveness of the Plan.

Accelerator and Fusion Research Division
Environment, Safety & Health Management Plan

Review and Approval

Signatures:

Submitted by

_____ _____
Richard A. Gough, Acting Director date signed
Accelerator and Fusion Research Division

EH&S Resource Commitment:

_____ _____
Phyllis Pei, Director date signed
Environment, Safety & Health Division

Accepted:

_____ _____
Steven Chu, Director date signed
E. O. Lawrence Berkeley National Laboratory

Web users may read the version of record, including signatures, at the AFRD Division Office.

APPENDIX 1
Estimated EHS Support of AFRD
From the EH&S Division

Function	**FTE**
Division Liaison Function	
Liaison -- AHD Reviews	.05
Liaison -- Inspections (IFA, SA, etc.)	.10
Liaison -- Consultations, meetings, etc.	.05
	.20
Other EH&S Support	
Electrical safety	.02
IH Hazard evaluations (includes chemical issues, respirators, lead, noise, confined space, air quality, project support)	.10
Emergency coordination and management	.03
ORPS	.05
Waste -- Training, consultations	.05
Ergonomics	.02
	.27
Total	**.47**

Note: EH&S support of ALS is included in the ALS Division ISM Plan.

APPENDIX 2. AFRD PY 2004 Self-Assessment Performance Measures

1. Define Work

Lab Expectations (for annual SA Report)	**AFRD Actions** (to implement expectations)	**Evidence** (for OAA validation)
E1. Resources are effectively allocated to balance ES&H, programmatic, and operational considerations.	E1.1 ES&H funding and resources are included in project proposals. E1.2 No projects are delayed due to inadequate planning for ES&H requirements. E1.3 Division or Program funding constraints does not impede corrective action completion.	E1.1 Copies of project proposals maintained in Division budget office. E1.2 Identify exceptions in Division Self-Assessment Report. E1.3 Identify exceptions in Division Self-Assessment Report.
E2. Line management regularly communicates ES&H policy, procedures, and lessons learned to all staff. Division staff has clear lines of communication to convey ES&H issues to Lab and Division management, including evidence of clear policy for all staff to communicate safety concerns. Examples of appropriate communications include: • Annual all-hands division meeting • Active Division Safety Committee • Group safety meetings • Division ES&H web site • Roles and responsibilities detailed in ISM plan • Division-wide e-mails	E2.1 Division Director sends annual safety memo to all Division employees. E2.2 AFRD ES&H Operations Committee meetings are held every month. Division management and each Program* are represented at each meeting. The Division ES&H Plan, its implementation status, and ES&H issues are discussed at these meetings. E2.3 AFRD ES&H Committee meetings are held at least 3 times/year. Division management and each Program* are represented at each meeting. The Division ES&H Plan, its implementation status, and ES&H issues are discussed at these meetings. E2.4 Each Program* holds at least one annual "all-hands" meeting with the Division Director and Program Head at which safety is discussed. E2.5 AFRD ISM Plan is posted on AFRD website. E2.6 Each Program* Head appoints a Program ES&H Coordinator to facilitate communication of ES&H issues and concerns between Program staff and Division management. E2.7 The Division ISM Plan is reviewed at least annually and updated as necessary.	E2.1 Copy of safety memo maintained in Division Office. E2.2 Copy of meeting agendas, minutes, and attendance sheets maintained in Division Office. E2.3 Copy of attendance sheets maintained in Division Office. E2.4 Copies of Program all-hands safety meeting agendas and attendance sheets maintained in Program offices. E2.5 Website address. E2.6 AFRD ES&H Committee organization chart. E2.7 Copy of signed and dated ISM Plan maintained in Division Office.

2. Identify Hazards

Lab Expectations (for annual SA Report)	**AFRD Actions** (to implement expectations)	**Evidence** (for OAA validation)
E3. Workspaces are inspected and evaluated on a regular basis.	E3.1 Division ES&H Administrator walks through all AFRD workspaces at least annually with appropriate Program ES&H Coordinator.	E3.1 % Division workspace inspected documented in Walkthrough records maintained in Division Office.
E4. Divisions have a process to identify, analyze, and categorize hazards associated with work. Examples of hazard inventory include: ❑ HEAR database. ❑ project safety review ❑ workspace safety review	E4.1 Principal Investigators or designated project participants complete AHDs or HEAR Client Input Forms for new experimental activities and modifications to experiments, which add new hazards or increase the level of hazards. . E4.2 Work not requiring formal EH&S authorizations is authorized by identification of hazards in the HEAR database and identification of appropriate training in Training Profiles. Hazards inventory for all AFRD workspaces is reviewed and updated annually. E4.3 For all projects requiring AHDs, Division review and approval will be obtained before project start-up. The Division will review AHDs for active projects annually or when changes in hazards or controls are anticipated. E4.4 Current Radiological Work Authorizations and Sealed Source Authorizations will be maintained for all projects requiring these authorizations.	E4.1 Current AHDs are on file in the Division Office and posted at the work area for all projects requiring AHDs. E4.2 Hazards inventory information is maintained on the HEAR database. Training profiles are maintained on the EH&S Training database. E4.3 A spreadsheet of AHD renewal dates and current status is maintained in the Division office. E4.4 Current Radiological Work Authorizations and Sealed Source Authorizations are on file in the Division Office and maintained at the work area for all projects requiring these authorizations.

3. Control Hazards

Lab Expectations (for annual SA Report)	**AFRD Actions** (to implement expectations)	**Evidence** (for OAA validation)
E5. Divisions ensure engineering and other safety controls are in place and maintained. Examples include, but are not limited to:	E5.1 Line Management ensures lab and shop safety ventilation systems and required monitors under their control are checked, serviced, calibrated and/or certified	E5.1 Documentation of equipment inspection and servicing maintained in Program Office or at work site. E5.2 QUEST team assessment

• guards • fume hoods • interlocks • personal protective equipment • gas monitors.	as required by PUB-3000, work procedures and manufacturers' recommendations. E5.2 Where applicable, QUEST teams check engineering controls in their areas at least annually.	records/meeting notes maintained in Program Office.
E6. Divisions ensure administrative controls are in place and maintained. Examples of administrative controls for self-authorized work include: • work procedures • project safety reviews • assurance letters	E6.1 Line Management ensures administrative controls are in place and maintained.	E6 Documentation of administrative controls maintained at applicable work sites.
E7. Divisions ensure that ergonomic issues are effectively addresses for work processes and staff workstations.	E7.1 Line managers request ergonomic evaluations for personnel with ergonomic concerns. E7.2 Line managers provide funding for ergonomic equipment identified in ergonomic evaluations. E7.3 Division ES&H Administrator ensures ergonomics training is made available to Division personnel.	E7.1 Records of ergonomic evaluations maintained on EH&S ergonomics and training databases. E7.2 Purchase requisitions maintained in Division or Program offices; worksite verification. E7.3 Ergonomics training records maintained on EH&S Training database.

Lab Expectations (for annual SA Report)	**AFRD Actions** (to implement expectations)	**Evidence** (for OAA validation)
E8. Divisions ensure that peroxide forming chemicals are effectively controlled. Examples of controls include: • Locations and owners of peroxide forming chemicals are identified • Peroxide forming chemicals are labeled in accordance with the Chemical Hygiene and Safety Plan • Peroxide forming chemicals are tested in accordance with the Chemical Hygiene and Safety Plan	E8.1 Chemical inventory is updated annually in AFRD areas. E8.2 Chemical inventory is checked for peroxide-forming chemicals. Evaluations are performed in accordance with the Chemical Hygiene and Safety Plan. E8.3 Chemical owners ensure peroxide-forming chemicals are labeled and tested in accordance with the Chemical Hygiene and Safety Plan.	E8.1 Chemical Management System database records E8.2 Evaluation sheets for peroxide-forming chemicals E8.3 Container labels

4. Perform Work

Lab Expectations (for annual SA Report)	**AFRD Actions** (to implement expectations)	**Evidence** (for OAA validation)
E9. Work is performed within the ES&H conditions and requirements specified by Lab policies and procedures.	E9.1 Principal Investigators/Activity Supervisors ensure continuous compliance with the work scope and hazard controls specified in work authorizations. E9.2 Hazardous waste generators assigned custodianship of Satellite Accumulation Areas (SAAs) maintain them in accordance with Guidelines for Generators, PUB-3092. Generators maintain control of SAAs, categorize and label wastes properly, and request pick-up by EH&S before accumulation time limits are exceeded. E9.3 Supervisors identify hazards and take actions necessary to reduce the rate of accidents and occurrences. All personnel report accidents and occurrences as required by PUB-3000.	E9.1 Reports of noncompliance. E9.2 % compliance for SAAs determined by EH&S inspection; %QA waste samples and number of NCARs reported by EH&S waste management. E9.3 Accident reports (SAARs) maintained by EH&S and in Division Office. Accident statistics reported by EH&S. Occurrence Reports maintained by EH&S and in Division Office. .
E10. Staff is proficient in performing work safely.	E10.1 Division ES&H Administrator reviews training needs with Programs at AFRD ES&H Operations Committee	E10.1 Training profiles and completion rates maintained in LBNL database. E10.2 Copies of signed JHQs or

	meetings. E10.2 Supervisors review Training Profiles and training records with employees during Performance Review period and when duties change significantly. E10.3 Division and Principal Investigator/Activity Supervisor review training records of personnel when reviewing authorizations. Principal Investigators/ Activity Supervisors ensure personnel complete on-the-job training required by authorizations and maintain records of training.	Training Profiles maintained in General Sciences Human Resources Office or Program offices. E10.3 Training review memos maintained in AHD files. Records of on-the-job training maintained by PI or Activity Supervisor
E11. Divisions review at least one research or operations process. Reviews are documented and, if possible, waste reduction strategies are implemented.	E11.1 ES&H Administrator and Generator Assistance Specialist review at least one process. E.11.2 Generators implement appropriate waste minimization efforts.	E.11.1 Report submitted to EH&S Waste Management. E11.2 Waste generation data maintained by EH&S.

5. Feedback and Improvement

Lab Expectations (for annual SA Report)	**AFRD Actions** (to implement expectations)	**Evidence** (for OAA validation)
E12. Managers and staff are regularly involved in ES&H feedback and improvement activities.	E12.1 All AFRD supervisors (as identified by the Program Head/Project Leader) perform at least one walkthrough of selected AFRD spaces annually. E12.2 All AFRD personnel (except short-term) participate in QUEST activities.	E12.1 Supervisor walkthrough records maintained in Division office. E12.2 QUEST team rosters, assessment records/meeting notes maintained in Program Offices. Division Safety Committee meeting notes discussing QUEST activities.
E13. ES&H deficiencies identified from workspace inspections, self-assessment activities, and external appraisals are corrected in a timely manner. A downward trend of Level 1 and 2 LCATS repeat deficiencies is established.	E13.1 AFRD ES&H Administrator maintains LCATS database. E13.2 Assigned Taskmasters ensure LCATS are closed in a timely manner.	E13.1/13.2 LCATS database.

E14. ES&H programmatic deficiencies identified from Management of ES&H (MESH) Reviews, Integrated Functional Appraisals (IFAs), and previous Division Self-Assessments are corrected in a timely manner.	E14. Responsible personnel ensure programmatic deficiencies are corrected in a timely manner.	E14 LCATSs and OAA reports.
E15. Division performs thorough review of all staff injuries and accidents, including analysis of conditions that led to injury and implementation of corrective actions.	E15.1 Supervisors ensure accident causes and corrective actions are effectively identified on SAARs. E15.2 Corrective actions identified on SAARs are implemented.	E15.1 SAARs maintained in EH&S database. E15.2 Completion status of SAARs-related LCATS.